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THE GREATEST CONFLAGRATION IN HISTORY





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Tokyo before the fire

TOKYO, Capital of the Japanese Empire, ranks easily as the third largest city in the world. Greater Tokyo, the municipality and its immediate environs, before the recent disaster had between five and six million people.

Its business district, and also that of Yokohama presented, as to types of buildings, much the appearance of an American city rather than the picturesque bamboo and paper structures of tradition.

In many respects the business buildings of Japan were even better than average American buildings. This is ably expressed by W. N. Starrett in *Scribner's Magazine*, September, 1923:

"While Japan largely missed our era of skeleton steel structures, concrete, when it came, fairly took the country by storm."



JUN 25 '25

fire protection

The Greatest Conflagration in History



FOR many years it has been the practice of THE SAFE-CABINET COMPANY to send trained investigators representing the SAFE-CABINET LABORATORY to study and report upon severe fires. In this manner "up to the minute" information as to actual conditions which record containers must meet is maintained and practical, scientific, laboratory testing standards established. As a special representative of the SAFE-CABINET LABORATORY, Mr. Murray left Marietta on September 13, 1923, and arrived in Japan October 4, 1923, to investigate and report on the Japanese Disaster. The following pages give a full report covering his investigation.

THE SAFE-CABINET COMPANY

Marietta, Ohio

January, 1924





Some of the effects of the earthquake.

THE EARTHQUAKE

SATURDAY, September 1, 1923, will long be remembered in Japan because on that date occurred the most terrible disaster that ever befell any civilized country. Except for a brief shower of rain in the early hours of the morning, the day broke calm and fair as any other day in Tokyo.

With the exception of the formation of a new cabinet under Count Yamamota, nothing unusual happened until 11.58.44 A.M., when a great rumbling sound was heard, approaching from afar, followed immediately by a series of vertical earthquake shocks. Before these vertical shocks had fully subsided, horizontal shocks of unusual strength twisted the ground surface, buildings, street car and railway tracks into fantastic shapes and positions.

As these convulsions continued, tearing walls and roofs apart, all Tokyo, save those unfortunates who had been caught in the first crash, was out in the streets.

This all occurred in a few minutes.

As the crowds stood spellbound in the streets they expected momentarily to see the buildings tumble down in ruins. Although the ground continued to quiver, the worst had happened and the shocks became less and less forceful.

Earthquake shocks continued at intervals for several days. The records at the Central Observatory, Tokyo, show that there were 1,319 separate and distinct shocks during the first seventeen days of September, the more violent occurring during the first three or four days. The loss of life and property attributed to the earthquake was caused by the first shocks but by far the greater proportion of property damage sustained and lives lost is generally accredited to the sweeping conflagration that followed.

It is estimated that in Yokohama the proportion of damage was due approximately 60% to the earthquake and 40% to the conflagration.



Remains of Ito, nearest town to center earthquake shock.



Part of Yokohama business district. New telephone exchange at left of picture.

In Tokyo the earthquake loss was small, being not more than 15% of the total damage, while 85% of the damage sustained was due to the conflagration.

THE SEISMIC AREA

According to the reports made by experts assigned by the Imperial Japanese Government to investigate the cause of the disaster, the upheaval was not volcanic in origin. The first and strongest concussion was the result of a subsidence in the sea bed off Ito, or in the deepest part of the Sagami Sea, and the next strongest was that of a chasm in the sea bed not very far off from Yokosuka.

The area affected by the earthquake represents, geographically, only a very small part of Japan, but Tokyo, the Capital, and Yokohama, the principal ocean port, are both in the afflicted area.

TIDAL WAVE AND LANDSLIDES

A number of small towns along the coast were visited by tidal waves, following the earthquake shocks, while in some districts, landslides took the place of the tidal waves. At Nebukawa railway station, a train carrying approximately one hundred and fifty passengers had stopped and all the passengers, together with about three hundred other persons who were round about, were buried and killed under the mass of falling earth.

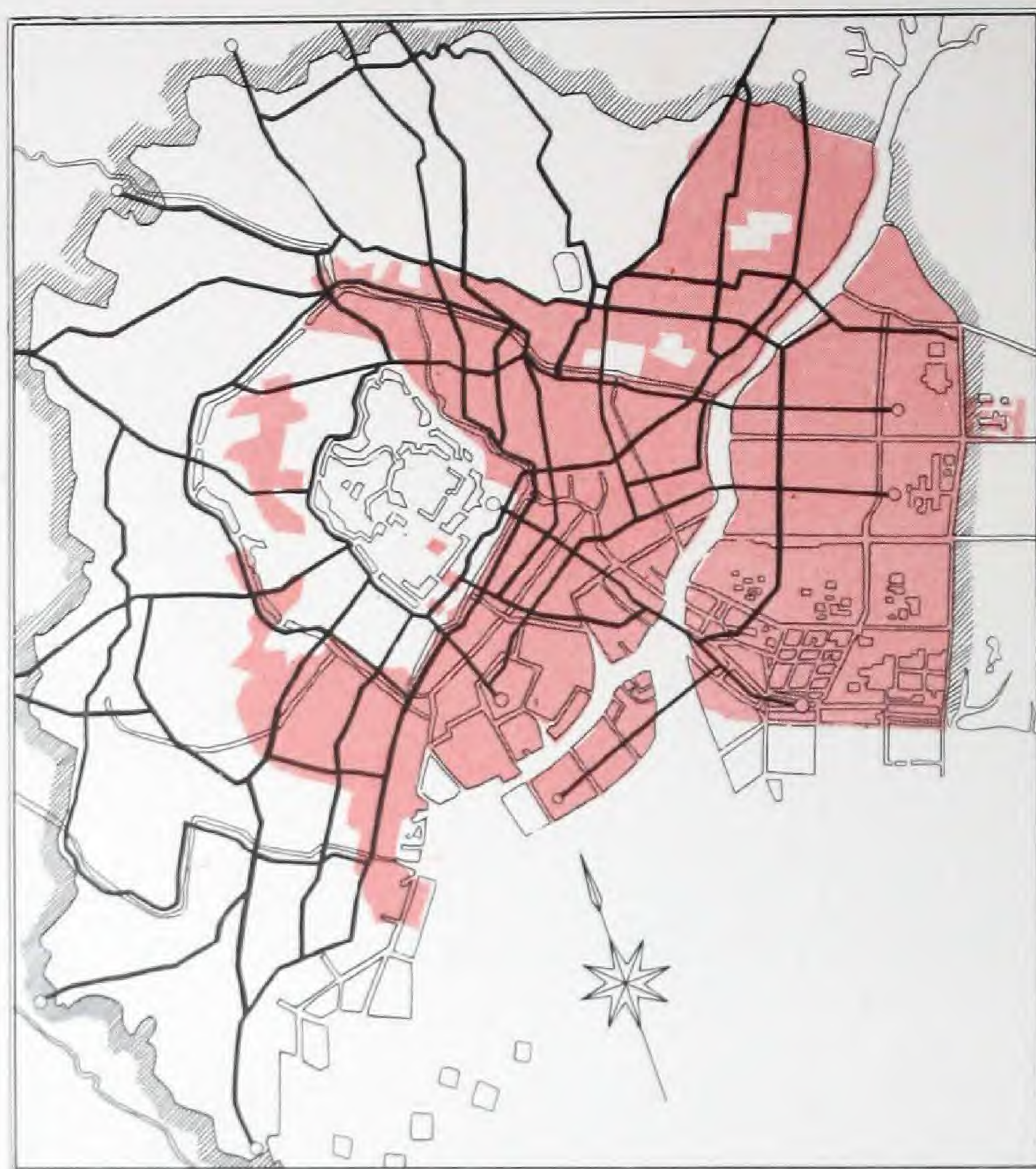
Neither the tidal wave nor the landslides occurred in the thickly populated districts of Tokyo or Yokohama, and therefore the loss of life and property damage caused by these conditions was relatively small.

THE DESTRUCTION OF YOKOHAMA

Yokohama, which for the past fifty years has been the leading port for Japanese exports and imports, is today but a mass of wreck and ruin. The effect of the shock and the conflagration that followed was complete with the exception of only a few brick and reinforced concrete buildings.

Main railway station, Yokohama.





Map of Tokyo. Red represents burned area seven miles long and two to three miles wide.

When I left the steamer at Yokohama on October 4 only one of the main streets had been cleared away, all other streets being filled with ruins and debris. Street car traffic had, of course, been entirely suspended as in many places the car tracks had been badly misplaced and many of the cars had been destroyed in the conflagration. Yokohama's water front, which prior to September 1 was typical of the large, important, port cities of the world, was burned to the water's edge. The stone and concrete breakwater and the fine piers, of which Yokohama formerly boasted, were crumpled beyond repair. Many of the lighters which were formerly used in transferring merchandise from incoming vessels to the customs "go-down" or warehouse, and to Tokyo, were entirely destroyed by fire.

While it was evident that the earthquake damage in Yokohama was universal throughout the city, the property destroyed and the number of lives lost would not have been nearly so great had it been possible to control the ensuing fires which soon developed into a conflagration that swept the entire city from one end to the other. Many people who were caught in buildings

damaged by the earthquake could have been moved to safety and the tremendous stocks of merchandise, machinery of all kinds, motor cars and other equipment which had not been at all affected by the earthquake could have been salvaged one hundred per cent., except for the disastrous fire which made it absolutely impossible to carry on rescue or salvage work within the afflicted area.

TOKYO, A SEA OF FIRE

Although the earthquake was injurious, the actual damage

Typical Tokyo scene six weeks after disaster.





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Effect of conflagration on Tokyo's modern buildings.

caused by the quake was almost trifling as compared with the complete ruin and desolation caused by the conflagration. This also applies with regard to lives lost, as in Tokyo particularly, the number of deaths due to the fire exceeds beyond measure the number of deaths caused by the earthquake. Within sixteen seconds after the first shock, columns of black smoke were rising from the Charity Hospital in Shiba, one of the laboratories of the Tokyo Imperial University, and from a number of factories and office buildings. Although Tokyo's fire department was well equipped and well organized, the automobile pumping engines had hardly reached the scenes of the first fires when the number of fires increased to fifty-two. Within twenty minutes from the time of the first earthquake shock there were seventy-six different fires burning in various parts of Tokyo, and it became absolutely impossible for the fire department to cope with the spreading conflagration.

Motormen and conductors left street cars standing in the streets. The whole city was running wildly about. Stamping men, women and children were fleeing everywhere from the oncoming flames.

The winds changed frequently, driving the fire in constantly changing directions. This was responsible for many of the deaths as this frequent, sudden changing of the winds made it impossible for the large crowds to get to places of safety before they were overtaken by the flames.

The fire raged on all through the afternoon and night of September 1, and continued through September 2 and 3. When the flames had finally spent their fury, by far the greater part of Tokyo's business district, along with many of the aristocratic residential sections and the more humble quarters of the city lay in smouldering embers.

LOSSES CAUSED BY THE CONFLAGRATION

According to the Japan "Times", an English speaking

Ruins of Yokohama Specie Bank branch in Tokyo.



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Searching ruins for bodies.

paper of Tokyo, there were 58,000 telephones in Tokyo prior to September 1, 1923. About two-thirds, or approximately 45,000 were destroyed in the conflagration, and of the remaining 23,000 only seventy-two were available for use during October. The use and convenience of the 23,000 telephones not destroyed was denied the public on account of the destruction of the telephone exchanges. The seventy-two telephones available for use were located principally in Government offices. The Tokyo Electric Street Railway system lost their main offices, five branch offices, six power stations, five car sheds, and 830 cars.

The last Government census showed there were approximately 15,000 factories in Greater Tokyo. Of these 7,122 or almost one-half the total were burned, throwing 72,980 people out of work.

Fortunately the important manufacturing city of Osaka, located about 400 miles from Tokyo was not in the devastated area, and many large and important industries escaped disaster.

The total damage suffered by Japan in this disaster is estimated at \$932,500,000.00, some of the times in this estimate being:

Buildings	\$397,000,000
Furniture	179,000,000
Manufacture	60,000,000
Agricultural Products	40,000,000
Machinery	26,000,000
Import Goods	13,000,000
Railroads	10,000,000
Cars	2,000,000
Live Stock	1,000,000



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These figures, of course, take no cognizance of the less tangible but very important losses through the destruction of records and business momentum.

Feeding rice and fruit to refugees at Relief Station.



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Rapid spread of the fire cost thousands of lives.

LIVES LOST

In considering this phase, we must recognize that information showing definitely the number of lives lost will probably never be available. Hundreds of thousands left the devastated area and the chaotic conditions that existed after the catastrophe made it impossible to obtain reliable data as to the number of lives lost. It is certain that the Japanese catastrophe from the standpoint of loss of human life will go down in history as the greatest trial humanity has ever had to meet. The inability of human beings in such tremendous numbers to protect their lives is an impressive demonstration of man's weakness as compared with fire, supported by the elements. The Metropolitan Police, Tokyo, recorded on September 14, 1923, 102,882 deaths and 231,238 missing from the burned area. The general assumption is that a large proportion of the missing had lost their lives.

THE HONJO HORROR

Many pages could be written on the horrors of the conflagration. This can be appreciated from the description of what is now referred to as the "Honjo Horror."

At noon, September 1, every vacant field of any size throughout Tokyo quickly became crowded with fear stricken people.

In Honjo, a district of Tokyo, there is an open tract of land of about twenty acres, known of the "Clothing Depot."

This made an ideal retreat and the people of the neighborhood began to pour in immediately after the first shocks. As the shocks continued, the numbers swelled to thousands. Many of those who had hurried from their homes brought household effects — furniture, bedding, clothing, and other articles.

By two o'clock many of the fires in the Honjo district had

Smoke and flames carried death and destruction in their path.





Bridges burned away cutting off vital roads to safety.

merged and flames had even carried across the Sumida River, which is approximately 240 yards wide.

By three o'clock the area was a solid mass of human beings, estimated at 34,000 men, women and children. Household effects were piled high in every available corner.

A raging sea of dense, scorching smoke and fire was now bearing down from all four sides of what had appeared to be a safe refuge from the flames. Even had they cared to do so, it would have been impossible for any of the 34,000 to have gotten away.

As the fire crept nearer, the heat was so intense that the whole area was turned into one immense oven. Cries for help and frenzied prayers now came from tens of thousands of throats, making a tremendous din that rose even above the roar of the sea of flames.

By sun down, what is described as a "terrific cyclone" by one of the survivors, brought a storm of sparks and fiery cinders from the burning surroundings.

Suddenly the vast accumulation of household goods began to burn. The horror of it was beyond description. Probably no sight so terrible has ever before been seen by man.

Thousands of human beings were being cremated or trampled to death in seeking safety from the flames. Out of the entire 34,000 refugees only a few hundred escaped death and these by nothing short of miracles.

MEANS OF ESCAPE

When the fires first started a light southerly wind was blowing. Presently the wind changed to a stiff west wind. This sudden change took the refugees by surprise and they had to run for their lives, leaving their belongings in street cars and parks. With the changing wind, it was only a few minutes before the household effects were going up in flames. Many new fires were thus started.

Again the wind changed, this time coming from the north, causing repetition of wild confusion, and spreading fire in every direction. The leaping tongues of fire soon joined with one



Refugees jammed every means of escape.





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American Blue Jackets aiding in early relief work.

another to grow into a tremendous conflagration and help swell the wholesale destruction of lives and property. In the afternoon of September 1, there were hundreds of thousands of people jammed into Ueno Park. The narrow, terror-congested streets leading to the park made progress toward safety almost impossible. One man whose home was about twenty minutes walking distance from the park, left his home at ten o'clock at night and did not reach the park until three o'clock next morning.

AMERICAN RELIEF WORK

The American Embassy was completely destroyed by fire but it was only a short time before the Embassy was moved to temporary quarters in The Imperial Hotel. Space was also provided for the American Red Cross in the temporary quarters of the Embassy and an efficient plan of relief work was quickly organized under the joint supervision of the Embassy and the Red Cross officials.

In a remarkably short space of time American motor trucks, operated by Marines, were hurrying through the streets of Tokyo, conveying wounded to temporary hospitals and carrying supplies of food, clothing and other necessities to the stricken thousands who had lost every worldly possession.

Food supplies were hurriedly brought in from China and The Philippines and the distribution of these was most efficiently handled by the American Red Cross.

It requires no stretch of imagination to realize how this splendid cooperation, which came at a time of such dire need, is appreciated by Japan. It will never be known how many lives were saved by the quick, well organized, efficient work of the American Embassy and the American Red Cross, but it is certain that the figure is large and the appreciation extends to all classes of people throughout Japan.

The great good accomplished by the American Red Cross in the days of Japan's disaster has resulted in a closer and better understanding between Japan and the United States. Japan today can appreciate better than ever before the sincere and heartfelt desire on the part of the American people to come to their aid and provide real practical help. It was a forceful demonstration



Temporary quarters U. S. Consulate.

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証明願

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米國セリモノキット會社
東洋興代店
三井物産會社
合名會社

東京市電氣局御中

右ハ長時間火中ニ在リ保管書類
安全ナリモノヲ證明候也

大正二十二年十月二十四日

東京市電氣局經理

THE TOKYO ELECTRIC BUREAU

Tokyo Electric Bureau,
Accounting & Purchasing Dept.

Yagishita Shoten.

別紙証明宝庫に弊店に總て記録有價證券
重要書類等此價格全貳百円餘を保管致し在
シ候處今日大震災に即り損傷を蒙りしハ偏
ニ寶庫に賜ト深シ茲ニ謝意を表シ候也
大正十二年 乙月

日本橋尾掛山町二丁目
柳下商

加下
石堂

The above SAFE-CABINET purchased from occurred went thru the worst fire in the history of . We were naturally very anxious about the safe and all our valuable records, ledgers, etc., etc., were . We hereby certify that THE SAFE-CABIN

A black and white photograph showing a close-up of a building's exterior. On the left, there is a section of a corrugated metal roof or wall that appears damaged and sagging. To the right, a dark, rectangular wooden door or window frame is visible, set into a light-colored wall. The overall scene suggests a state of decay or neglect.



米國... 證明書
右貴社... 證明書
何今... 證明書

證明書

Engineering Contractor

ku, Tokyo
ment.

ATE
E-CABINET

ind which was in use when the great earthquake
ld and stayed in a severe fire for fourteen hours.
t as we were able to get at the safe it was opened
in perfect condition.

(Signed) Hattori Takejiro.

SUDZUKI & COMPANY Manufacturers of Preserves "AJINOMOTO"

Factory in Kawasaki,
Tokyo, October 15, 1923.

SAFE-CABINET Department,
Andrews & George Company Gomei Kaisha,
General Agents in the Far East for
THE SAFE-CABINET COMPANY, U.S.A.

CERTIFICATE

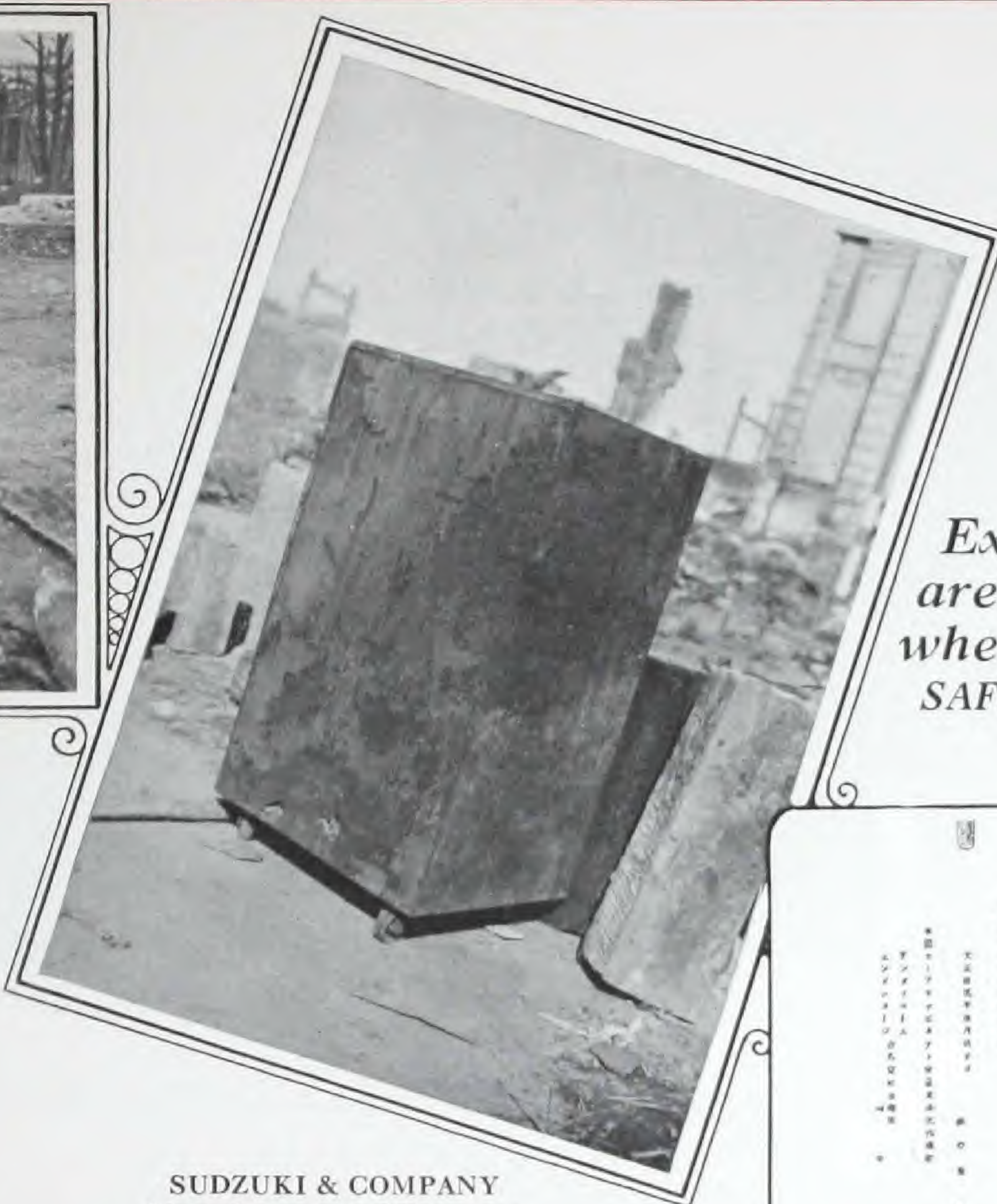
We purchased from you two No. 23 M. E. SAFE-CABINETS manufactured by THE SAFE-CABINET COMPANY of U.S.A., which were in use at the time of the recent very disastrous earthquake and its subsequent fire, and in spite of the fact that they were in a very severe fire for a period of over ten hours the contents were fully protected.

We hereby wish to certify that the two SAFE-CABINETS fully proved their value.
(Signed) "AJINOMOTO" Sudzuki & Company.



證明書
右貴社... 證明書
何今... 證明書

Translation
at right.



Similar
Experiences
are Common
wherever THE
SAFE-CABINET
is used

Translation at left.

YAGISHITA SHOTEN Toilet Article Wholesalers

Nichome Yokoyamacho Nihombathiku

Tokyo, September 20, 1923.

Andrews & George Company,
SAFE-CABINET Department,
Far Eastern Agents of

THE SAFE-CABINET COMPANY, U.S.A.

CERTIFICATE

One No. 53 S. E. SAFE-CABINET
One No. 23 S. E. SAFE-CABINET

Manufactured by

THE SAFE-CABINET COMPANY, U.S.A.

The above mentioned SAFE-CABINETS were purchased from you and were in use by us when the great earthquake of September 1 struck and its consequent fire, and they were enveloped in severe fire for six hours. After the fire was extinguished we examined these SAFE-CABINETS thoroughly and found them in perfect condition.

We take this opportunity of certifying that THE SAFE-CABINET is strong and safe.

(Signed)

Yagishita Shoten Kabushiki Kaisha,
Hidekichi Yagishita,
(Representative)





Mile after mile of destruction and desolation.

of the fact that America was not actuated by mercenary motives in relieving the disorganized condition created by the conflagration.

DURATION OF FIRE

The conflagration that started almost coincident with the first earthquake shocks continued throughout September 1, 2, and 3. For only a few minutes after the first fires started was any water thrown on the flames, after which no resistance of any kind could be offered to the onrushing fire.

In any one spot the duration of fire was approximately the same as in conflagrations in the United States, being governed by the amount of combustible materials in the buildings and merchandise.

As in Baltimore, San Francisco, Cloquet, Salem and many other conflagrations in America where the fire permitted no use of water or retardants, the ruins remained hot and smouldering for days.

SPREAD OF FIRE

In Yokohama, formerly a city of 400,000 people, the destruction was complete. No part of the town escaped and only the walls of a few buildings were left standing.

The burned area of Tokyo covers a stretch about seven miles long and from two to three miles across. Within this vast area nothing whatever was left when the fire finally burned itself out with the exception of the walls of concrete, brick, and stone buildings.

Tokyo is a city of canals, measuring in many cases ninety feet wide.

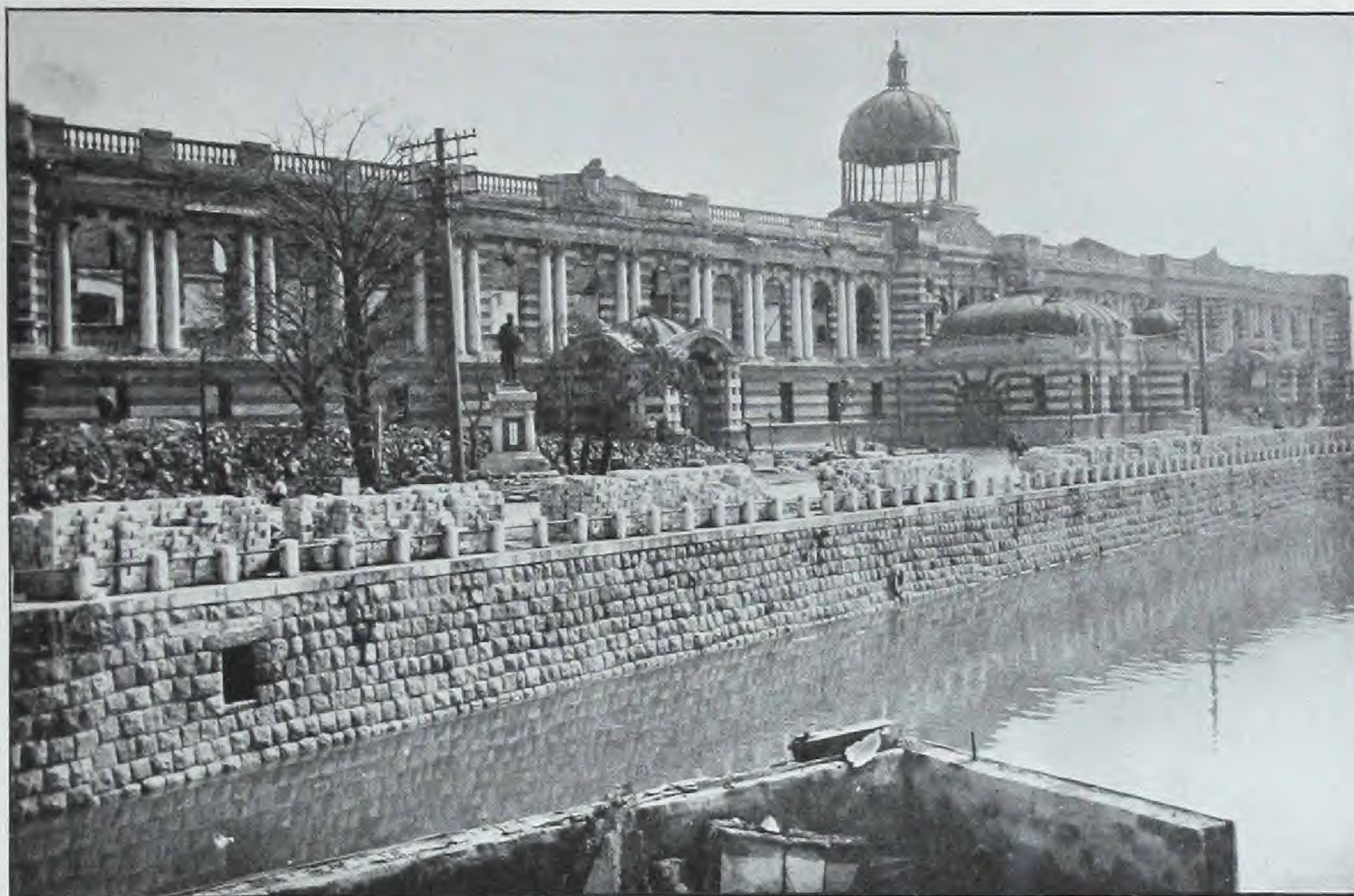
But "invisible heat waves" which play such a part in the spread of every conflagration frequently jumped across these wide "streets of water" to start fires on the opposite side.

In many cases buildings in the path of these heat waves, but not actually in the fire zone, were seen to suddenly burst into flames.



Metropolitan Police Station at Tokyo. Its bare walls later had to be dynamited.





Department of Communication, Imperial Japanese Government. Typical of government buildings in the ruins.

Bridges across the river and canal system either added to the carrying of fire or were engulfed by fires on both sides of the waterway.

The "whip-sawing" effect of the changing winds which seemingly always accompany conflagrations—and which are believed to be in part caused by them, carried heat and flames back and forth over the destroyed area, leaving practically nothing burnable in their path. And yet, these changes of wind were fortunate for such portions of Tokyo as remained unburned, for, as in the recent Berkeley, California, conflagration, they carried the flames away from the unburned areas and avoided an even greater loss and destruction.

TEMPERATURES DEVELOPED

Because of the fact that the fire covered such vast areas and that after the first few minutes no water was available, the temperatures developed mounted quickly to very high points. Stocks of merchandise of all kinds, including oils, greases, paints and other highly combustible and heat generating products, were stored in "go-downs" or warehouses, throughout the cities. Department stores and shops of all kinds added their lots and all contributed toward making the sweeping mass of flame one of the most severe and hottest fires in the history of the world.

The heat was so intense that practically nothing escaped destruction in the burned area except the contents of such safes and vaults as withstood the fire conditions.

Brass, melting at 1,500 to 1,750° F. ran freely as water, as also did copper, melting at 1,980° F.

Cast iron and steel, I found quite generally melted and fused throughout the entire fire area, showing that temperatures well beyond 2,000° F. were common.

Note the effect of temperature on reinforced concrete buildings.





Modern reinforced concrete, stone and brick buildings in fire area all succumbed to heat.

TYPES OF BUILDINGS

The impression that seems to be general in America that all buildings in Japan are of match-wood construction is by no means correct. Especially in the larger cities such as Tokyo, Yokohama (before the conflagration), Kobe and Osaka modern, foreign construction has been employed freely and there are a goodly number of brick, stone and reinforced concrete buildings.

W. H. Starrett writing in "Scribners' " September, 1923, says:

"Yokohama, with its modern docks and rows of dingy European structures, solid and stodgy, not unlike the water fronts of London or Amsterdam, its brick hotels with illusory modernized exteriors, gives a feeling of disappointment to the visitor who on his first venture from shipboard is looking for the picturesque in Japan. The coolies and sampans go their accustomed way, but the little toy gardens and thatched cottages are not to be seen, and one must wander into the byways to catch even a glimpse of the remnants of the ancient native construction."

The narrow streets were lined with stodgy, solid stone, iron shuttered buildings of the European type. A number of the buildings in the business district were erected by American construction companies, after most modern, reinforced concrete office building design, especially strengthened to resist earthquake shock.

EFFECT OF TEMPERATURES ON BUILDINGS

Looking over the burned area in Tokyo or Yokohama one will see the remains of what a few months ago were high grade, well constructed, modern buildings in which the average American tenant would feel secure from fire. But, this conflagration is just another chapter in the evidence that proves that no type of building construction has yet been designed by man that can withstand the onslaught of conflagration. In Tokyo there are any number of brick, stone and concrete buildings with only the walls left standing, with their steel fire windows in place, as a silent indication of their inability to safeguard their contents against the ravages of fire.



Theatre district before the fire.



This vast area and much more is in position to collect very little if any fire insurance.

In many so called "fireproof" buildings the heat became so intense that the floors, which were of "fireproof" construction, dropped from one floor to another, to a tangled mass of ruin in the basement. Such buildings created such a menace that in many cases their destruction has to be completed by dynamiting the walls.

The Imperial Japanese Government suffered the loss of several buildings including those housing the Departments of Home Affairs, Finance, Education, Agriculture and Commerce, Communication and Railways. These were imposing buildings of modern foreign type construction. Their complete loss illustrates the intensity of the conflagration. Other imposing structures in Tokyo that were swept away in the path of the flames included the Metropolitan Police Office, the Board of Audit, the Y. M. C. A., the Army Arsenal, several large department stores, including Mitsukoshi's, the Bank of Japan and several other head offices of important financial institutions, the Tokyo Electric Company, Tokyo Gas Company, Tokyo Stock Exchanges, Tokyo Serial Exchange, the Central Telegraph Office, the Tokyo Commercial University, several colleges, middle schools, girls' high schools and primary schools, fifty-four hospitals, eleven newspaper offices, three fire stations, eighteen police stations and many others. The burned area of Tokyo represents approximately two-thirds of the entire city. Within this tremendous area there was nothing that escaped the ravages of the fire.

THE INSURANCE SITUATION

All standard fire insurance policies in Japan, as well as several other countries of the Far East include an "Earthquake Clause." This specifies that the policy does not cover losses incurred on account of fire if such fires are directly or indirectly due to earthquakes. Added protection, covering losses incurred on account of earthquake conditions, can be secured by the payment of additional premium. Whether the Earthquake clause was understood and its

Thousands, pending adjustments, were forced to exist as best they could.





All that is left of The Wall Street of Tokyo

significance appreciated in Japan is open to debate. Had this clause been understood and appreciated by the Japanese business men, who recognize that Japan is more or less subject to earthquake conditions, it would seem that they would have availed themselves of this additional protection. The facts are, however, that with only very rare exception were the insurance policies written to provide protection against loss incurred on account of earthquake conditions. Therefore, the vast majority of policy holders have been unable to collect any insurance to cover their losses.

The insurance problem has been taken up by the Imperial Japanese Government and when I left Japan on November 29, plans were being considered whereby Japanese insurance companies would reimburse their policy holders who suffered complete loss for ten percent of the amount of their policies. This proposal did not meet with universal approval on the part of foreign insurance companies, and I have not yet learned whether any settlement has been made.

Even should such an arrangement be made this small amount will not begin to cover the losses sustained by policy holders. Had they been thoroughly familiar with their insurance contracts, taken advantage of the "Earthquake Clause" and safeguarded the records necessary to prove their claims they would have been saved from the ruin faced by many of them today.

RECORDS LOST

The frequent non-committal attitude of fire stricken people coupled with the scattering of the thousands of refugees over wide areas, with no addresses or directories made impossible any comprehensive check-up as to results of specific record loss. This may not be felt to its greatest degree for several weeks, or even months, but will undoubtedly equal, if not exceed, as it does in America, the loss in tangible property.

Two vaults in Hibya district. Note insulated doors on one with wooden shelving interior in good condition. Other vault with ordinary steel door lost all contents.



It was commonly known that the Japanese Patent Office lost all their records which will cause untold loss, inconvenience, and uncertainty to Japanese and also to foreign manufacturers.

The letter on this page from the Bureau of Post Office Life Insurance, of Tokyo, tells something of the situation relating to Life Insurance Companies and policy holders as a result of loss of records in the fire.

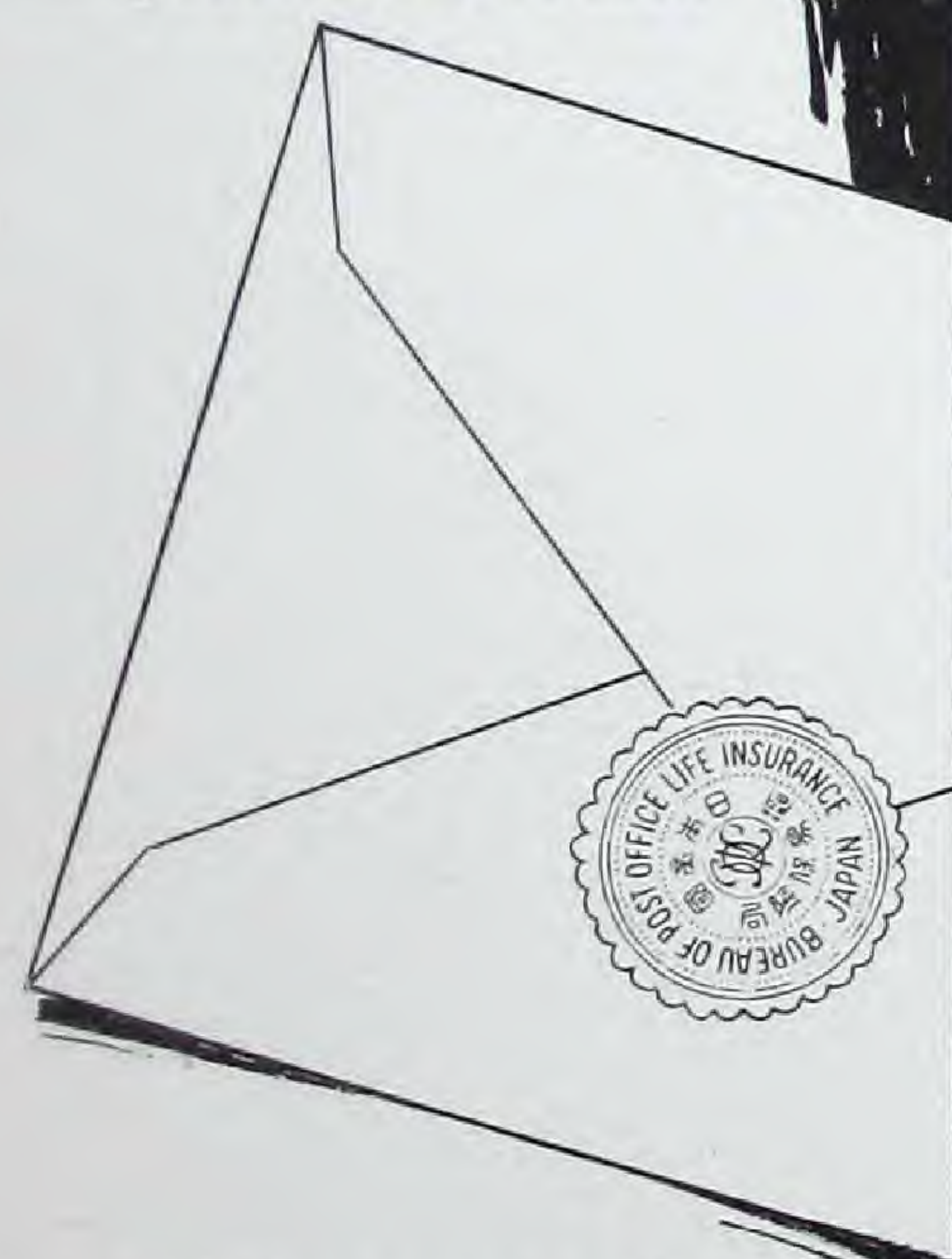
These cases may be taken as fairly indicative of the growing realization of the vital part records play in business and the loss brought about through their destruction by fire.

VAULTS

Vaults are commonly used in Japan for housing records and in private homes and estates for storing valuable kimonos, costly wearing apparel, relics and other household effects. Many of these vaults are constructed separate from the buildings and homes, and are generally of brick or brick and concrete. Frequently vaults were built with window openings, and when such vaults were located in the burned area, they failed without exception. On many better record vaults, because the door openings were protected only by ordinary steel doors, the doors warped or offered no practical degree of protection against the high heats that were generated, and the contents were completely destroyed.

Still other vaults were found with cracks in the walls, some of which may have been caused by the earthquake shocks. The heat penetrated through the cracks and destroyed the records and valuables which they contained. One of the largest Japanese banking institutions was commonly reported to have had its gold specie melted inside a most substantial vault.

Both inside and outside of vaults steel filing cabinets were used



to a slight extent only, Japanese wooden cabinets being more common. In no case could it be found that filing cabinets of either steel or wood protected their contents.

No. P. 102.

Tokyo, Nov. 26th, 1923

To the president,
Atlantic Life Insurance Co.,
Richmond, Virginia,
U. S. A.

Dear Sir:

I deeply regret to have to announce that owing to the conflagration which followed the severe earthquake recently experienced here in Tokyo, our main office building together with a library has been reduced to ashes. Consequently, the valuable data, both at home and abroad, hitherto gathered by the Planning Department from various quarters have entirely been consumed by fire.

The business, however, has been resumed in a few detached rooms which, I am glad to say, have escaped blaze.

I should, therefore, esteem it a great favour if you will furnish me with Statements showing the growth of your business, Specimen Policies, Provisions, Rate books, Prospectus, Publications as to the conservation of health and the prolongation of life of the insured and any other available information which you may deem to our interests respecting your

- (1) Ordinary Life Insurance.
- (2) Industrial Life Insurance.
- (3) Annuities.
- (4) Infantile Insurance.
- (5) Sub-Standard Insurance.
- (6) Group Insurance.
- (7) Saving Insurance.
- (8) Disability Clause (If available, any statistics relating to the frequency and duration of disability).
- (9) Any other kinds of policy you write.

I may have written to you asking for information on any of one and the same subjects as mentioned above. If so, kindly pardon my mentioning it a second time. Everything being lost by fire, there is no means whatever to make sure where or not it was the case; and I deem it rather advisable to mention them in an exhaustive way.

Thanking you in anticipation,

Yours truly,

T. Kuwazama
Director
Bureau of Post Office Life Insurance,
Tokyo, Japan.

This letter typifies conditions of even the largest businesses in fire area when records were inadequately protected.





The Tokyo Electric Co. had three iron safes. One preserved contents—two failed completely.



Two typical 5-inch wall iron safes which lost all contents.

PERFORMANCE OF SAFES AND OTHER RECORD CONTAINERS IN THE FIRE

Survey of the burned area shows that heavy iron safes similar to those commonly seen in America were in general use in practically every place of business. While it was customary Japanese practice to set these heavy safes on a concrete foundation and therefore most of them did not fall, I could not determine that they protected their contents any more frequently than did safes of similar construction in Baltimore and San Francisco. Yet a great many of these heavy iron safes were of recent construction. It is variously estimated that there were from 25,000 to 40,000 heavy iron safes in use in the burned areas and it was, of course, impossible to make a complete survey of this number. However, from my examination of a large part of the burned area, and from the number of cases where I did get complete data, I should say that their performance would come between the published figures of 80% failure in the San Francisco fire (U. S. Geological Survey Bulletin No. 324) and the 65% failure in the Baltimore conflagration (National Fire Protection Association Committee Report).

THE SAFE-CABINET

Not only was the total number of safes in the Japanese fire the largest in the history of the world, but also there were more SAFE-CABINETS in this fire than in any one previous conflagration.

By the time I reached Japan all THE SAFE-CABINETS had been opened and among the surrounding scenes of desolation, the most redeeming and pleasing feature, was the greetings which I received from their many owners.

There were 152 SAFE-CABINETS, mostly of the S. E. and M. E. types in the conflagration. Like all other safes, they were subjected to the terrific conditions that prevailed. Unlike practically all of the heavy iron safes, however, their relative light weight had led to their not being set upon concrete bases, and in many cases they fell several floors into the ruins.

The owners of fourteen of these SAFE-CABINETS could not be found after the conflagration. We interviewed all of the remaining 138. Six of them stated that in their panic they had failed to close the safe doors.



Note concrete base on which iron safes were set.





Of the remaining 112 SAFE-CABINETS we found that 100 per cent. of Severe Exposure SAFE-CABINETS had delivered their contents unharmed to their anxious owners, and 83 per cent. of Medium Exposure SAFE-CABINETS had protected their contents perfectly.

Our products of lesser grade showed variable results ranging materially downward from these figures.

It goes almost without saying that such a showing in the world's worst fire, and not by a few instances, but by mass of evidence, has carried the business men of Japan by storm and cannot be otherwise than a striking endorsement to all the world's people who have records to protect.

It was interesting to learn that the Japanese workmen engaged in opening safes after the fire charged 25 yen to open a SAFE-CABINET while the charge for opening an iron safe was but 15 yen.

And it was most pleasurable to me and to our Japanese representatives to see that after THE SAFE-CABINET had performed its vital function of saving business records, it played another happy part in relieving suffering and aiding the wonderful Japanese people in their "come-back"—for again and again as I travelled through the devastated areas I saw the steel sheets ripped from the inside of SAFE-CABINETS forming siding for temporary quarters—the start toward newer and even better cities on the ashes of disaster.

A. L. MURRAY.

Reconstruction quickly started in Japan, and slums from inside of SAFE-CABINETS formed siding on many of these temporary structures.



PARTIAL LIST OF SEVERE CONFLAGRATIONS OF THE PAST CENTURY

1820	Savannah, Ga.....	\$ 3,000,000
1825	New York City.....	17,500,000
1835	New York City.....	17,000,000
1838	Charleston, S. C.....	6,000,000
1839	New York City.....	4,000,000
1842	Harrisburg, Pa.....	35,000,000
1845	New York City.....	3,000,000
1845	Pittsburgh, Pa.....	1,500,000
1848	Constantinople.....	15,000,000
1849	St. Louis, Mo.....	3,000,000
1850	Philadelphia, Pa.....	1,500,000
1851	St. Louis, Mo.....	15,000,000
1851	San Francisco, Calif.....	3,500,000
1852	New Orleans.....	5,000,000
1861	Charleston, S. C.....	10,000,000
1866	Portland, Me.....	10,000,000
1870	Constantinople.....	25,000,000
1871	Chicago, Ill.....	168,000,000
<i>3 1/2 square miles of buildings destroyed. 56 insurance companies rendered insolvent.</i>		
1872	Boston, Mass.....	70,000,000
<i>65 acres laid waste.</i>		
1876	New York City.....	1,750,000
1876	St. Hyacinthem, Can....	15,000,000
1877	St. John, N. B.....	15,000,000
1879	New York City.....	1,300,000
1879	New York City.....	2,000,000
1882	Kingston, Jamaica.....	10,000,000
1888	New York City.....	1,140,000
1889	New York City.....	1,900,000
1889	Seattle, Wash.....	5,000,000
1889	Spokane, Wash.....	4,800,000
1889	Boston, Mass.....	3,800,000
1889	Lynn, Mass.....	5,000,000
1891	New York City.....	1,550,000
1892	New Orleans, La.....	1,100,000
1892	St. Johns, N. F.....	25,000,000
1892	New Orleans, La.....	11,400,000
1892	Milwaukee, Wis.....	5,000,000
1893	Boston, Mass.....	1,030,000
1893	Boston, Mass.....	3,000,000
1896	Guayaquil, Ecuador.....	22,000,000
1896	Chicago, Ill.....	1,150,000
1897	Pittsburgh, Pa.....	2,000,000
1898	Pittsburgh, Pa.....	1,400,000
1898	Terre Haute, Ind.....	1,850,000
1899	Philadelphia, Pa.....	3,000,000
1900	Ottawa, Can.....	10,000,000
1900	Bayonne, N. J.....	1,440,000
1900	Hoboken, N. J.....	5,500,000
1901	Jacksonville, Fla.....	11,000,000
1902	Waterbury, Conn.....	1,400,000
1902	Paterson, N. J.....	5,800,000
1903	Cincinnati, Ohio.....	1,500,000
1904	Baltimore, Md.....	40,000,000
<i>Devastated 140 acres including 1343 buildings.</i>		
1904	Rochester, N. Y.....	3,200,000
1904	Toronto, Canada.....	12,000,000
1906	San Francisco, Calif.....	350,000,000
<i>Earthquake and fire loss, 3000 acres destroyed, involving 520 city blocks, 25,000 buildings destroyed, only 3000 of which were brick or stone.</i>		
1908	Chelsea, Mass.....	12,000,000
<i>3500 buildings, covering 275 acres destroyed.</i>		
1908	Atlanta, Ga.....	1,250,000
1914	Salem, Mass.....	13,000,000
<i>1700 buildings, covering 253 acres, destroyed.</i>		
1918	Northern Minnesota....	75,000,000
<i>28 towns destroyed.</i>		
1922	Haileybury, Ont.....	6,370,000
1922	Chicago, Ill.....	10,000,000
1922	Astoria, Ore.....	15,000,000
1923	Berkeley, Calif.....	7,000,000
<i>SAFE - CABINET LABORATORIES Fire Research Files. "Fire Prevention & Fire Pro- tection", J. K. Freitag, "Cyclopedia of Fire Prevention & Insurance", National Fire Pro- tection Association Quarterlies.</i>		

SUMMARY

This most recent of conflagrations stands out as the most severe only in regard to its extent in loss of life and property.

The growing concentration of property values and population in large centers tends toward continually larger disasters when fire is once started, and wind, fuel and fire-fighting conditions are right for that fire to get beyond control.

While the Japanese conflagration was of earthquake origin, as was also the San Francisco fire, study of the partial list opposite will readily disclose only these two cases having such beginning. With but these two exceptions, all the well known, serious fires which have occurred in history, and the number of which continually increases at an alarming rate in America, have originated from the entirely normal, every day causes which surround every business today. Every fire is an incipient conflagration. Other than its origin, no essential difference can be noted between this fire and those which are continually occurring.

TEMPERATURES DEVELOPED—Temperatures were apparently no greater than in any other fire with similar wind and fuel conditions, and where the fire was unsuccessfully fought.

DURATION OF FIRE—Length of time a fire burns is dependent also on fuel and wind and the retardants applied. Extremely hot ruins prevail in all fires where water supply and fire fighting facilities are not entirely ample and effective. This is also true of millions of smaller fires.

WIND—This fire developed nothing new as to high winds. The history of all conflagrations shows that the tremendous upward currents of heated air aid or create severe wind conditions.

INVISIBLE HEAT WAVES—These have been well recognized as factors in spread of such fires as Baltimore, Hot Springs, Mexicali and Chicago (Burlington Building) fire.

FIRE FIGHTING FACILITIES—Fire and fire fighting facilities are purely relative in their power. That modern fire departments and a water supply ample for all ordinary needs were not sufficient in this most recent case is not in any sense different than in every serious American fire. The entire history of conflagrations is one of the fire conditions being such as to overwhelm the fire fighting facilities, no matter how modern and efficient they may be.

BUILDING CONSTRUCTION—Every one of the substantial buildings in the fire area, many of them being of an even ultra "fireproof" type, is today either in ruins or is a skeleton of blackened walls, just as has been the case in every business district conflagration in the United States. Buildings are not yet built which will withstand serious adjacent fire.

PERFORMANCE OF RECORD CONTAINERS—Failures of vaults aside from earthquake causes was very similar to previous experience in America where "settling cracks," unprotected windows or inadequate doors have led to a high percentage of loss. Safes of the heavy iron type performed approximately as in other severe fires frequently occurring in the United States.

That they lost their contents, even tho they did not fall, strengthens modern science in its belief that heat and not structural stress is the greatest danger to efficiency of record protective devices.

The collective test of THE SAFE-CABINET, in large numbers and under universally severe conditions, checks up accurately with other performance records of similar models of the SAFE-CABINET in other severe fires.

Results contribute substantially to the increasing evidence of necessity for such testing standards as are employed in certification of SAFE-CABINET Products.



THE SAFE - CABINET



“THE WORLD’S SAFEST SAFE”



